2015 FIELD CROP BUDGETS

Publication 60

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These crop budgets are a tool for estimating expenses. The sample costs are only a guide to illustrate a method of preparing your projections. They are based on many assumptions, including seeding rates, levels of fertilizer use, etc. Due to regional differences, there may be considerable variation in results.

To project your break-even price after total costs, enter your farm figures in the spaces provided. The resulting estimate will help you choose your crop mix and set target prices and marketing strategies for your farm.

Electronic versions of these crop budget worksheets can be found at www.ontario.ca/agbusiness under *Cost of Production Budgets*.

The use of imperial and metric measurement in this publication reflects the way information is reported by industry. Seeding rates are typically reported in pounds (lb)/acre, and fertilizer rates are reported in kilogram (kg)/hectare. See page 22 for metric and imperial conversions.

Ministry of Agriculture, Food and Rural Affairs

Ontario

2015 FIELD CROP BUDGETS

Crop budgets are a management tool to estimate costs and evaluate cropping alternatives. The sample costs are not averages or recommended treatments. The budgets comprise treatments derived from crop advisors in the areas where the crops are commonly grown. There will be differences due to growing region, cropping practices, individual needs and yield expectations. The budgets, unless indicated otherwise, are based on conventional tillage practices. Seed costs, except for the *Bacillus thuringiensis* (Bt), Roundup Ready (RR) and herbicide-tolerant corn, spring canola and soybeans, are for non-genetically enhanced varieties. The budgets developed for Bt, RR or herbicide-tolerant varieties do not represent an endorsement of these products. They are included due to the current predominance of these production systems in field crop operations.

Identity Preserved (IP) crops require budgeting for any extra expenses and revenue — for example, increased seed, weed control, storage and equipment cleaning costs. Some of the budgets provide a line item for this.

Interest rates were calculated at 4.0% for the period between planting and harvest.

These budgets will be most meaningful if you use your expected yields and specific costs in developing production plans. Input prices for seed, fertilizer, fuel and pesticides were based on the survey results reported in the Ontario Farm Input Monitoring Project conducted by the University of Guelph, Ridgetown campus. The crop insurance premiums shown are the producer premiums at the highest coverage level and at the floating price, if available.

The estimated costs for machinery are derived from agricultural engineering formulas and Ontario average custom rates. The Ontario average custom rates are allocated across the six machinery-related expenses. It is recommended that you use your records to derive your costs. Experience is the best guide to help budget machinery costs. Prior year's statements of income and expenses can provide information on equipment repairs, maintenance and fuel costs. The portion of those costs that relates to crop production can be divided by the acres of crop produced to arrive at a cost per acre.

Overhead expenses are a major part of the total cost of doing business. In addition to the depreciation of machinery, include depreciation on all related tools and storage buildings. Land costs would include property tax and any other land-related costs. Other overhead expenses should include insurance, professional fees, office, vehicles and storage. In all cases, divide overhead expenses by the acreage of crop to express costs on a per-acre basis. Interest on investment is an opportunity cost to you — the rate of return that you expect or want on your invested capital.

If there are significant debt commitments for land and equipment, an alternative method of budgeting overhead expenses is to use the debt servicing requirements. In this case, use the actual interest and principal payment commitments, rather than depreciation and expected return on invested capital.

"Total Revenue" is the yield you expect multiplied by the price you expect. Yield information is most accurate if based on your experience with the land and techniques you will be using. If you do not have such records, check with AGRICORP or a local farm supply dealer. They can help you develop plans and reasonable expectations for your crops.

"Gross Margin" is the difference between total operating expenses and total revenue. "Operating Expenses" (e.g., seed, fertilizer, fuel, repairs, etc.) change with the crop grown and the production blend used. "Fixed or (overhead) Costs" will show little or no change whether one crop or another is grown. "Gross Margin" is a quick and easy measure for comparing relative profitability among your cropping choices.

Table 1. Adjustment for nitrogen requirement to crops following a legume crop

	N requirement reduction (kg/ha)	
Type of crop	**Corn**	**Other Crops**
Less than ⅓ legume	0	0
⅓ to ½ legume	55	55
½ or more legume	110	110
Perennial legumes seeded/ploughed in same year	80	45[1]
Soybean and field bean residue	30	0

[1] Applies where the legume stand is thick and over 40 cm (16 in.) high.

2015 Crop Comparison Summary Table for Selected Field Crops ($/acre)*

Expense	Corn Conventional Tillage	Herbicide-Tolerant Spring Canola	Non-GMO Soybeans No till	Roundup Ready Soybeans No till	Coloured Beans	White/ Black Beans	Soft Winter Wheat No till	Oats (Southern Ontario)	Hard Red Spring Wheat
Seed	113.35	64.00	50.95	82.15	118.50	80.60	52.55	36.25	62.10
Seed treatment	1.60	–	10.10	10.10	–	–	–	–	–
Fertility	123.70	110.80	44.45	44.45	44.95	44.95	101.30	34.55	66.70
Pesticides	14.10	18.50	45.20	16.60	104.50	104.50	23.80	23.80	23.80
Total Inputs	**252.75**	**193.30**	**150.70**	**153.30**	**267.95**	**230.05**	**177.65**	**94.60**	**152.60**
Tillage	48.15	45.10	–	–	72.20	50.15	–	45.10	45.10
Planting	22.05	20.05	23.05	23.05	22.05	27.05	23.05	20.05	20.05
Spraying	10.00	20.00	20.00	20.00	30.00	40.05	20.00	20.00	20.00
Fertilizing	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
Harvesting & trucking	72.70	46.35	50.65	50.65	109.05	55.00	56.90	49.65	50.40
Total Machinery	**162.90**	**141.50**	**103.70**	**103.70**	**243.30**	**182.25**	**109.95**	**144.80**	**145.55**
Drying	75.20	–	12.15	12.15	–	–	–	–	–
Crop insurance	13.85	17.60	11.55	11.55	31.75	21.35	9.75	6.80	10.40
Interest @ 4.0%	9.75	6.05	5.10	5.15	8.35	7.90	8.75	3.30	5.05
Marketing & other	33.15	3.65	11.60	11.60	5.85	5.85	1.80	–	1.10
Total Costs	**547.60**	**362.10**	**294.80**	**297.45**	**557.20**	**447.40**	**307.90**	**249.50**	**314.70**
Yield									
Price									
Gross Return									
Net Margin/Acre									
Less:									
Land cost/rent									
Utilities/acct/misc.									
Net Return per Acre									

* The crop comparison summary table is derived from the individual budgets in the publication. Some expense items have been combined in the summary table. For the break-out of the individual expenses, refer to the respective budget in the publication.

Changes for the 2015 Field Crop Budgets

Insecticide seed treatment for corn and soybeans has been separated from the seed costs.

Fertilizer rates for P_2O_5 and K_2O were determined by average nutrient removal by crop based on projected yield.

Grain Financial Protection fees have been added to the Marketing board fees line for crops covered.

Crop Budgeting Tools:

Ontario Enterprise Budgeting Tools: http://www.omafra.gov.on.ca/english/busdev/bear2000/Budgets/oeb.htm
Crop Nutrient Removal calculator (from IPNI): http://www.ipni.net/article/IPNI-3346
Corn nitrogen calculator: http://www.gocorn.net/
Weed Pro- (Maximizing Herbicide Profitability): http://www.weedpro75.com/index.php
Custom farm work rates: http://www.omafra.gov.on.ca/english/busdev/2012customrates.htm
Custom Farm Work rate calculator: http://www.omafra.gov.on.ca/english/busdev/download/calc_farmwork.htm

ALFALFA-TIMOTHY HAY

DIRECT SEEDING ESTABLISHMENT			Sample Costs/ Acre	Your Farm Budget
Seed	12 lb/acre alfalfa		56.55	
Other seed (timothy)	4 lb/acre		12.85	
Inoculant			1.05	
Fertility	Crop removal	24 kg/ha P_2O_5 (6.1 kg/tonne removal rate)	10.75	
		93 kg/ha K_2O (23.5 kg/tonne removal rate)	34.50	
Herbicide	burndown and broadleaf control		24.50	
Crop insurance			3.70	
Tractor and machine expenses	fuel (32 L) and lubricants		37.75	
	repairs		20.75	
Custom work	2 pesticide applications		20.00	
	2 fertilizer applications, mixing and delivery		20.00	
	bale wrapping — plastic — 50% yield		34.70	
Twine			–	
Operator labour (self or hired)			29.55	
Interest			11.10	
		Total Establishment Year Expenses	**317.75**	
ANNUAL OPERATING EXPENSES (costs based on projected yield of 3.5 tonne/acre)				
Establishment year expenses — over 4 years (less establishment year sales)			32.10	
Fertility	Crop removal	48 kg/ha P_2O_5 (6.1 kg/tonne removal rate)	21.45	
		185 kg/ha K_2O (applied in fall)other (23.5 kg/tonne removal rate)	69.05	
Tractor and machine expenses	fuel (19 L) and lubricants		22.75	
	repairs		15.90	
Twine			–	
Crop insurance			22.70	
Custom work	2 fertilizer applications, mixing and delivery		20.00	
	bale wrapping — plastic		69.40	
Other costs			–	
Land rent			–	
Operator labour (self or hired)			28.15	
Interest on operating			6.30	
		Total Annual Operating Expenses	**307.80**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Revenue (Yield x Price)		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		22.00	
	interest on investment		13.40	
Land			–	
Other overhead			7.75	
NITROGEN CREDIT TO FOLLOWING CROPS IN ROTATION				
Nitrogen credit ($/acre = N reduction (from Table 1) x price of N)				
Grain yield increase				
Total benefits/year				
		TOTAL EXPENSES	**350.95**	
		Break-even price on your farm (total expenses/expected yield):		

BARLEY

OPERATING EXPENSES (costs based on projected yield of 1.5 tonnes/acre (70 bu/acre))			Sample Costs/ Acre	Your Farm Budget
Expenses for Grain				
Seed	120 lb/acre certified treated (1.0–1.4 M seeds/acre)		48.95	
Fertility	74 kg/ha N (2,800 or less corn heat units (CHUs))		37.15	
	46 kg/ha N (2,800 or more CHUs)		23.25	
	Crop removal	30 kg/ha P_2O_5 (8.0 kg/tonne removal rate)	13.40	
		23 kg/ha K_2O (6.3 kg/tonne removal rate)	8.75	
Herbicide	annual grasses and broadleaf weeds		7.40	
	other		–	
Fungicide	if required		–	
Tractor and machine expenses	fuel (17 L) and lubricants		19.95	
	repairs and maintenance		15.55	
Crop insurance			6.80	
Marketing board fees			–	
Custom work	fertilizer application, mixing and delivery		10.00	
	1 pesticide application		10.00	
	other		–	
Trucking ($8.00/tonne)			12.00	
Storage			–	
Land rent			–	
Operator labour (self or hired)			13.35	
Interest on operating			5.50	
		Total Operating Expenses — Grain (2,800 or less CHUs)	**208.80**	
		Total Operating Expenses — Grain (2,800 or more CHUs)	**194.90**	
Expenses for Straw (costs based on projected yield of 1.14 tonnes/acre)				
Fertility	Crop removal	7 kg/ha P_2O_5 (2.6 kg/tonne removal rate)	3.30	
		57 kg/ha K_2O (20.0 kg/tonne removal rate)	21.20	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	
	repairs and maintenance		3.25	
Twine			2.95	
Other			12.45	
		Total Operating Expenses — Straw	**47.20**	
		Total Operating Expenses (2,800 or less CHUs)	**256.00**	
		Total Operating Expenses (2,800 or more CHUs)	**242.10**	
REVENUE				
Expected barley yield _____				
Expected barley price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Barley Revenue		
Expected straw yield _____				
Expected straw price _____				
		Total Straw Revenue (Yield x Price)		
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		

OVERHEAD EXPENSES		Barley Only	Barley & Straw	
Machinery	depreciation	30.05	33.30	
	interest on investment	15.45	16.95	
Land		–	–	
Other overhead		11.75	12.80	
TOTAL EXPENSES (2,800 or less CHUs)		**266.05**	**319.05**	
TOTAL EXPENSES (2,800 or more CHUs)		**252.15**	**305.15**	
		Break-even price on your farm (total expenses/expected yield):		

SPRING CANOLA

Herbicide Tolerant

OPERATING EXPENSES (costs based on projected yield of 0.91 tonne/acre (2,000 lb/acre))			**Sample Costs/ Acre**	**Your Farm Budget**
Seed	5 lb/acre hybrid, treated		64.00	
Fertility	130 kg/ha N (230 kg/ha urea + 112 kg/ha ammonium sulphate)[1]		75.70	
	Crop removal	56 kg/ha P_2O_5 (24.5 kg/tonne removal rate)	24.90	
		27 kg/ha K_2O (12.0 kg/tonne removal rate)	10.20	
Herbicide	other weed control (wild oat, grass, volunteer cereal)		11.50	
Technology use agreement			–	
Insecticide	if required (swede midge)		7.00	
Fungicide	if required		–	
Tractor and machine expenses	fuel (17 L) and lubricants		20.70	
	repairs and maintenance		17.25	
Marketing board and Grain Financial Protection fees ($4.00/tonne)			3.65	
Crop insurance			17.60	
Custom work	fertilizer application, mixing and delivery		10.00	
	2 pesticide applications		20.00	
	other		–	
Trucking ($8.00/tonne)			7.30	
Storage			–	
Land rent			–	
Operator labour (self or hired)			11.85	
Interest on operating			6.05	
		Total Operating Expenses	**307.70**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		29.25	
	interest on investment		14.90	
Land			–	
Other overhead			11.05	
		TOTAL EXPENSES	**362.90**	
		Break-even price on your farm (total expenses/expected yield):		

[1] Nitrogen rate is based on nitrogen price of $1.268/kg ($0.578/lb) N and a canola price of $450/tonne. 112 kg/ha ammonium sulphate (21-0-0-24) supplies 27 kg/ha sulphur.

See the canola section of the OMAFRA *Agronomy Guide for Field Crops*, Publication 811, for more accurate nitrogen requirements for canola, adjusted for yield and fertilizer cost.

WINTER CANOLA

OPERATING EXPENSES (costs based on projected yield of 1.3 tonnes/acre)			Sample Costs/ Acre	Your Farm Budget
Seed*	3.5 lb/acre — hybrid, treated		35.95	
Fertility**	200 kg/ha N (383 kg/ha urea + 112 kg/ha ammonium sulphate)[1]		111.25	
	Crop removal	80 kg/ha P_2O_5 (24.5 kg/tonne removal rate)	35.60	
		39 kg/ha K_2O (12.0 kg/tonne removal rate)	14.55	
Herbicide	volunteer cereal control		11.10	
Insecticide	if required (cabbage seedpod weevil)		16.20	
Fungicide	if required		–	
Tractor and machine expenses	fuel (13 L), lubricants		15.50	
	repairs and maintenance		13.85	
Marketing board and Grain Financial Protection fees ($4.00/tonne)			5.20	
Crop insurance			17.60	
Custom work	fertilizer application, mixing and delivery		10.00	
	2 pesticide applications		20.00	
	other		–	
Trucking ($8.00/tonne)			10.40	
Storage			–	
Land rent			–	
Operator labour (self or hired)			7.35	
Interest on operating			6.50	
		Total Operating Expenses	**331.05**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		20.45	
	interest on investment		11.65	
Land			–	
Other overhead			8.10	
		TOTAL EXPENSES (Hybrid)	**371.25**	
		Break-even price on your farm (total expenses/expected yield):		

* Seeding rate recommended range is 3–5 lb/acre. The lower rate may be difficult to achieve with some seed drills.

** Additional nitrogen in the fall may be beneficial if seeding is delayed.

[1] 112 kg/ha ammonium sulphate (21-0-0-24) supplies 27 kg/ha sulphur.

COLOURED BEANS

OPERATING EXPENSES (costs based on projected yield of 0.86 tonne/acres (19 cwt/acre))			**Sample Costs/ Acre**	**Your Farm Budget**
Seed	70–80 lb/acre (4–5 seeds/ft row) certified, treated seed (with fungicide plus Cruiser insecticide)		118.50	
Fertility	40 kg/ha N		20.20	
	Crop removal	30 kg/ha P_2O_5 (14.0 kg/tonne removal rate)	13.50	
		30 kg/ha K_2O (14.0 kg/tonne removal rate)	11.25	
Herbicide	annual grass and broadleaf weeds		35.85	
	other weed control, if required		–	
Insecticide			–	
Fungicide	if required (white mould)		50.25	
Crop pre-harvest			18.40	
Tractor and machine expenses	fuel (31 L) and lubricants		36.75	
	repairs and maintenance		28.85	
Marketing board fees ($6.80/tonne)			5.85	
Crop insurance			31.75	
Custom work	fertilizer application, mixing and delivery		10.00	
	3 pesticide applications		30.00	
Trucking ($8.00/tonne)			6.90	
Drying			–	
Land rent			–	
Operator labour (self or hired)			24.75	
Interest on operating			8.35	
		Total Operating Expenses	**451.15**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Market Revenue (Yield x Price)		
Less pick charges (typically 2%–4%)				
Program payment				
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		56.10	
	interest on investment		28.35	
Land			–	
Other overhead			23.40	
		TOTAL EXPENSES	**559.00**	
		Break-even price on your farm (total expenses/expected yield):		

GRAIN CORN

OPERATING EXPENSES (costs based on projected yield of 3.81 tonnes/acre (150 bu/acre))			Tillage System: Conventional Sample Costs/Acre	Tillage System: Minimum Till Sample Costs/Acre	Tillage System: No-Till Sample Costs/Acre	Your Farm Budget
Seed[1] (average cost of 3 hybrids)	32,000 kernels — treated — RR[2]		118.00	118.00	118.00	
	32,000 kernels — treated — Bt		98.00	98.00	98.00	
	32,000 kernels — treated — multi-trait		124.10	124.10	124.10	
Insecticide seed treatment, if required			1.60	1.60	1.60	
Fertility[3]	140 kg/ha N (500 kg/ha of 28-0-0 U.A.N.)		77.15	77.15	77.15	
	Crop removal	65 kg/ha P_2O_5 (6.9 kg/tonne removal rate)	29.15	29.15	29.15	
		47 kg/ha K20 (4.9 kg/tonne removal rate)	17.40	17.40	17.40	
Herbicide	annual grass and broadleaf weed		14.10	14.10	14.10	
	burndown		–	–	8.30	
	other weed control, if required		–	–	–	
Insecticide/fungicide	if required		–	–	–	
Tractor and machine expenses	fuel (25 L conventional, 16 L minimum, 10 L no-till) and lubricant		28.60	20.65	13.55	
	repairs and maintenance		15.85	14.60	10.45	
Marketing board and Grain Financial Protection fees ($0.44/tonne)			1.70	1.70	1.70	
Crop insurance			13.85	13.85	13.85	
Custom work	fertilizer application, mixing and delivery		10.00	10.00	10.00	
	pesticide applications		10.00	10.00	20.00	
	other		–	–	–	
Trucking ($8.05/tonne)			30.65	30.65	30.65	
Drying ($19.75/tonne, 8 points)			75.20	75.20	75.20	
Land rent			–	–	–	
Operator labour (self or hired)			16.70	12.25	8.55	
Storage ($2.06/tonne/month x 4 months)			31.45	31.45	31.45	
Interest on operating			9.70	9.45	9.50	
		Total Operating Expenses	**496.45**	**482.55**	**485.95**	
REVENUE						
Expected yield _____						
Expected price _____						
		Total Market Revenue (Yield x Price)				
Program payment						
		Total Revenue				
		GROSS MARGIN (Revenue — Operating Expenses)				
OVERHEAD EXPENSES						
Machinery	depreciation		28.45	27.30	18.85	
	interest on investment		13.05	12.20	8.40	
Land			–	–	–	
Other overhead			11.20	10.25	7.10	
		TOTAL EXPENSES	**549.15**	**532.30**	**520.30**	
		Break-even price on your farm (total expenses/expected yield):				

1 Seed treated with fungicide only.

2 Roundup Ready.

3 Nitrogen rate is based on the nitrogen rate calculator. Nitrogen recommendation is for corn grown in southwestern/central Ontario, 2,800 heat units, clay loam soil, following wheat with straw removed, with projected corn yield of 150 bu/acre, nitrogen cost of $1.38/kg and corn price of $4.05/bu.

See www.gocorn.net for more accurate nitrogen requirements for corn.

SILAGE CORN

OPERATING EXPENSES (costs based on projected yield of 16 tonne/acre)			Sample Costs/ Acre	Your Farm Budget
Seed	31,000 kernels, with seed treatment		115.85	
Insecticide seed treatment, if required			1.60	
Fertility[1]	140 kg/ha N (500 kg/ha of 28-0-0 U.A.N.)		77.15	
	Crop removal	80 kg/ha P_2O_5 (5.7 kg/tonne removal rate)	35.65	
		163 kg/ha K_2O (11.7 kg/tonne removal rate)	60.85	
Herbicide	annual grass and broadleaf weeds		8.30	
	other weed control, if required		–	
Insecticide/fungicide	if required		–	
Tractor and machine expenses	fuel (37 L) and lubricants		44.70	
	repairs and maintenance		21.85	
Silo repair and maintenance			–	
Crop insurance			13.85	
Silage inoculant			–	
Custom work	fertilizer application, mixing and delivery		10.00	
	pesticide applications		10.00	
	other		–	
Land rent			–	
Operator labour (self or hired)			33.25	
Interest on operating			8.65	
		Total Operating Expenses	**441.70**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		35.95	
	interest on investment		18.50	
Land			–	
Other overhead			6.80	
		TOTAL EXPENSES	**502.95**	
		Break-even price on your farm (total expenses/expected yield):		

[1] Nitrogen rate is based on the nitrogen rate calculator. Nitrogen recommendation is for corn grown in southwestern/central Ontario, 2,800 heat units, clay loam soil, following wheat with straw removed, with projected corn yield of 150 bu/acre, nitrogen cost of $1.38/kg and corn price of $4.05/bu.

See www.gocorn.net for more accurate nitrogen requirements for corn.

FLAX

OPERATING EXPENSES (costs based on projected yield of 0.71 tonne/acre)			Sample Costs/ Acre	Your Farm Budget
Expenses for Grain				
Seed	37.5 lb/acre certified, treated		26.60	
Fertility	45 kg/ha N		22.70	
	Crop removal	23 kg/ha P_2O_5 (7.5 kg/tonne removal rate)	10.05	
		17 kg/ha K_2O (5.8 kg/tonne removal rate)	6.50	
Herbicide	broadleaf weed control		7.40	
	grass weed control, if required		8.00	
	dessicant		8.30	
Fungicide			–	
Tractor and machine expenses	fuel (17 L) and lubricants		19.95	
	repairs and maintenance		15.55	
Crop insurance			–	
Custom work	fertilizer application, mixing & delivery		10.00	
	2 pesticide applications		20.00	
	other		–	
Trucking ($8.00/tonne)			5.70	
Storage			–	
Land rent			–	
Operator labour (self or hired)			13.35	
Interest on operating			3.50	
		Total Operating Expenses — Grain	**177.60**	
Expenses for Straw (costs based on projected yield of 1.14 tonnes/acre)				
Fertility	Crop removal	9 kg/ha P_2O_5 (3.2 kg/tonne removal rate)	4.05	
		54 kg/ha K_2O (19.0 kg/tonne removal rate)	20.15	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	
	repairs and maintenance		3.25	
Twine			2.95	
Other			12.45	
		Total Operating Expenses — Straw	**46.90**	
		Total Operating Expenses	**224.50**	
REVENUE				
Expected flax yield _____				
Expected flax price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Flax Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		

OVERHEAD EXPENSES		Flax Only	Flax & Straw	
Machinery	depreciation	30.05	33.30	
	interest on investment	15.45	16.95	
Land		–	–	
Other overhead		11.75	12.80	
	TOTAL EXPENSES	**234.85**	**287.55**	
	Break-even price on your farm (total expenses/expected yield):			

OATS

OPERATING EXPENSES (costs based on projected yield of 1.2 tonnes/acre (78 bu/acre))			Sample Costs/ Acre	Your Farm Budget
Seed	85 lb/acre certified treated		36.25	
Fertility	35 kg/ha N (Southern Ontario)		18.00	
	55 kg/ha N (Northern Ontario)		27.85	
	Crop removal	23 kg/ha P_2O_5 (7.5 kg/tonne removal rate)	10.05	
		17 kg/ha K_2O (5.8 kg/tonne removal rate)	6.50	
Herbicide	weed control, if required		7.40	
Fungicide	for premium quality market		16.40	
Tractor and machine expenses	fuel (17 L) and lubricants		19.95	
	repairs and maintenance		15.55	
Crop insurance			6.80	
Marketing board fees			–	
Custom work	fertilizer application, mixing and delivery		10.00	
	2 pesticide applications		20.00	
Trucking ($8.00/tonne)			9.60	
Storage			–	
Land rent			–	
Operator labour (self or hired)			13.35	
Interest on operating			3.30	
		Total Operating Expenses — Grain (Southern Ontario)	**193.15**	
		Total Operating Expenses — Grain (Northern Ontario)	**203.00**	
Expenses for Straw (costs based on project yield of 1.14 tonnes/acre)				
Fertility	Crop removal	9 kg/ha P_2O_5 (3.2 kg/tonne removal rate)	4.05	
		54 kg/ha K_2O (19.0 kg/tonne removal rate)	20.15	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	
	repairs and maintenance		3.25	
Twine			2.95	
Other			12.45	
		Total Operating Expenses — Straw	**46.90**	
		Total Operating Expenses (Southern Ontario)	**240.05**	
		Total Operating Expenses (Northern Ontario)	**249.90**	
REVENUE				
Expected oat yield _____				
Expected oat price _____				
		Total Market Revenue (Yield x Price)		
Program payment				
		Total Oats Revenue		
Expected straw yield _____				
Expected straw price _____				
		Total Straw Revenue (Yield x Price)		
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		

OVERHEAD EXPENSES		Oats Only	Oats & Straw	
Machinery	depreciation	30.05	33.30	
	interest on investment	15.45	16.95	
Land		–	–	
Other overhead		11.75	12.80	
	TOTAL EXPENSES (Southern Ontario)	**250.40**	**303.10**	
	TOTAL EXPENSES (Northern Ontario)	**260.25**	**312.95**	
	Break-even price on your farm (total expenses/expected yield):			

SOYBEANS

OPERATING EXPENSES (costs based on projected yield of 1.24 tonnes/acre (44 bu/acre))			Tillage System: Conventional Sample Costs/Acre	Tillage System: No-Till Sample Costs/Acre	Tillage System: Roundup Ready No-Till Sample Costs/Acre	Your Farm Budget
Seed	177,000 seeds/acre in 15-in. rows — drill (165,000 seeds/acre in 15-in. rows — planter)		50.95	50.95	82.15	
Insecticide seed treatment, if required			10.10	10.10	10.10	
Inoculant	if required		–	–	–	
Fertility	nitrogen, if required		–	–	–	
	Crop removal	42 kg/ha P_2O_5 (14.0 kg/tonne removal rate)	18.75	18.75	18.75	
		69 kg/ha K_2O (23.0 kg/tonne removal rate)	25.70	25.70	25.70	
Herbicide	annual grass and broadleaf weeds		36.90	36.90	8.30	
	burndown		–	8.30	8.30	
	other weed control, if required		–	–	–	
Insecticide/ fungicide	if required		–	–	–	
Tractor and machine expenses	fuel (17 L conventional, 8 L no till) and lubricants		19.95	10.50	10.50	
	repairs and maintenance		15.90	11.90	11.90	
Marketing board and Grain Financial Protection fees ($1.41/ tonne)			1.70	1.70	1.70	
Crop insurance			11.55	11.55	11.50	
Drying ($11.17/tonne)			12.15	12.15	12.15	
Custom work	pesticide applications		10.00	20.00	20.00	
	fertilizer application, mixing and delivery		10.00	10.00	10.00	
Added expense for IP			–	–	–	
Trucking ($8.00/tonne)			9.60	9.60	9.60	
Storage ($2.06/month/tonne x 4 months)			9.90	9.90	9.90	
Land rent			–	–	–	
Operator labour (self or hired)			13.35	6.85	6.85	
Interest on operating			5.15	5.10	5.15	
		Total Operating Expenses	**261.65**	**259.95**	**262.60**	
REVENUE						
Expected yield _____						
Expected price _____						
		Total Market Revenue (Yield x Price)				
Additional revenue from IP						
Program payment						
		Total Revenue				
		GROSS MARGIN (Revenue — Operating Expenses)				
OVERHEAD EXPENSES						
Machinery	depreciation		30.65	18.45	18.45	
	interest on investment		16.25	10.25	10.25	
Land			–	–	–	
Other overhead			12.10	7.15	7.15	
		TOTAL EXPENSES	**320.65**	**295.80**	**298.45**	
		Break-even price on your farm (total expenses/expected yield):				

SOFT WINTER WHEAT

OPERATING EXPENSES (costs based on projected yield of 2.1 tonnes/acre (76 bu/acre))			Tillage System: Conventional Sample Costs/Acre	Tillage System: No-Till Sample Costs/Acre	Your Farm Budget
Expenses for Grain					
Seed	110 lb/acre certified treated (1.4–1.7 M seeds/acre)		52.55	52.55	
Fertility	132 kg/ha N		66.65	66.65	
	Crop removal	51 kg/ha P_2O_5 (9.8 kg/tonne removal rate)	22.90	22.90	
		32 kg/ha K_2O (6.0 kg/tonne removal rate)	11.75	11.75	
Herbicide	broadleaf weeds		7.40	7.40	
Fungicide	fusarium head blight		16.40	16.40	
Tractor and machine expenses	fuel (17 L conventional, 8 L no till) and lubricants		19.95	9.40	
	repairs and maintenance		15.55	12.45	
Crop insurance			9.75	9.75	
Marketing and Grain Financial Protection board fees ($0.85/tonne)			1.80	1.80	
Custom work	fertilizer application, mixing and delivery		10.00	10.00	
	2 pesticide applications		20.00	20.00	
Added expense for IP			–	–	
Trucking ($8.00/tonne)			16.85	16.85	
Land rent			–	–	
Operator labour (self or hired)			13.35	5.85	
Interest on operating			9.45	8.75	
		Total Operating Expenses — Grain	**294.35**	**272.50**	
Expenses for Straw (costs based on projected yield of 1.14 tonnes/acre)					
Fertility	Crop removal	5 kg/ha P_2O_5 (1.7 kg/tonne removal rate)	2.15	2.15	
		34 kg/ha K_2O (12.0 kg/tonne removal rate)	12.70	12.70	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	4.05	
	repairs and maintenance		3.25	3.25	
Twine			2.95	2.95	
Other			12.45	12.45	
		Total Operating Expenses — Straw	**37.55**	**37.55**	
		Total Operating Expenses	**331.90**	**310.05**	
REVENUE					
Expected wheat yield _____					
Expected wheat price _____					
		Total Market Revenue (Yield x Price)			
Additional income from IP					
Program payment					
		Total Wheat Revenue			
Expected straw yield _____					
Expected straw price _____					
		Total Straw Revenue (Yield x Price)			
		Total Revenue			
		GROSS MARGIN (Revenue — Operating Expenses)			

OVERHEAD EXPENSES		Conventional Tillage: Wheat Only	Conventional Tillage: Wheat & Straw	No-Till: Wheat Only	No-Till: Wheat & Straw	Your Farm Budget
Machinery	depreciation	30.05	33.30	18.65	21.90	
	interest on investment	15.45	16.95	10.80	12.30	
Land		–	–	–	–	
Other overhead		11.70	12.75	7.05	8.10	
	TOTAL EXPENSES	**351.55**	**394.90**	**309.00**	**352.35**	
	Break-even price on your farm (total expenses/expected yield):					

HARD RED WINTER WHEAT

OPERATING EXPENSES (costs based on projected yield of 2.1 tonnes/acre (76 bu/acre))			Tillage System: Conventional — Sample Costs/Acre	Tillage System: No-Till — Sample Costs/Acre	Your Farm Budget
Expenses for Grain					
Seed	140 lb/acre certified treated (1.4–1.7 M seeds/acre)		66.90	66.90	
Fertility	165 kg/ha N		83.30	83.30	
	Crop removal	51 kg/ha P_2O_5 (9.8 kg/tonne removal rate)	22.90	22.90	
		32 kg/ha K_2O (6.0 kg/tonne removal rate)	11.75	11.75	
Herbicide	broadleaf weeds		7.40	7.40	
	other weed control, if required		–	–	
Fungicide	fusarium head blight		16.40	16.40	
Tractor and machine expenses	fuel (17 L conventional, 8 L no till) and lubricants		19.95	9.40	
	repairs and maintenance		15.55	12.45	
Crop insurance			9.40	9.40	
Marketing board and Grain Financial Protection fees ($0.85/tonne)			1.80	1.80	
Custom work	fertilizer application, mixing and delivery		10.00	10.00	
	2 pesticide applications		20.00	20.00	
Added expense for IP			–	–	
Trucking ($8.00/tonne)			16.85	16.85	
Land rent			–	–	
Operator labour (self or hired)			13.35	5.85	
Interest on operating			10.50	9.75	
		Total Operating Expenses — Grain	**326.05**	**304.15**	
Expenses for Straw (costs based on projected yield of 1.14 tonnes/acre)					
Fertility	Crop removal	5 kg/ha P_2O_5 (1.7 kg/tonne removal rate)	2.15	2.15	
		34 kg/ha K_2O (12.0 kg/tonne removal rate)	12.70	12.70	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	4.05	
	repairs and maintenance		3.25	3.25	
Twine			2.95	2.95	
Other			12.45	12.45	
		Total Operating Expenses — Straw	**37.55**	**37.55**	
		Total Operating Expenses	**363.60**	**341.70**	

REVENUE	
Expected wheat yield _____	
Expected wheat price _____	
Total Market Revenue (Yield x Price)	
Additional income from IP	
Program payment	
Total Wheat Revenue	
Expected straw yield _____	
Expected straw price _____	
Total Straw Revenue (Yield x Price)	
Total Revenue	
GROSS MARGIN (Revenue — Operating Expenses)	

OVERHEAD EXPENSES		Conventional Tillage: Wheat Only	Conventional Tillage: Wheat & Straw	No-Till: Wheat Only	No-Till: Wheat & Straw	
Machinery	depreciation	30.05	33.30	18.65	21.90	
	interest on investment	15.45	16.95	10.80	12.30	
Land		–	–	–	–	
Other overhead		11.70	12.75	7.05	8.10	
	TOTAL EXPENSES	**383.25**	**426.60**	**340.65**	**384.00**	
	Break-even price on your farm (total expenses/expected yield):					

HARD RED SPRING WHEAT

OPERATING EXPENSES (costs based on projected yield of 1.29 tonnes/acre (47.4 bu/acre))			Sample Costs/ Acre	Your Farm Budget
Expenses for Grain				
Seed	130 lb/acre certified treated (1.4–1.6 M seeds/acre)		62.10	
Fertility	90 kg/ha N (200 kg/ha urea)		45.45	
	Crop removal	31 kg/ha P_2O_5 (9.8 kg/tonne removal rate)	14.05	
		19 kg/ha K_2O (6.0 kg/tonne removal rate)	7.20	
Herbicide	broadleaf weeds		7.40	
	grass or wild oat control, if required		–	
	other weed control, if required		–	
Fungicide	fusarium head blight		16.40	
Tractor and machine expenses	fuel (17 L) and lubricants		19.95	
	repairs and maintenance		15.55	
Crop insurance			10.40	
Marketing board and Grain Financial Protection fees ($0.85/tonne)			1.10	
Custom work	fertilizer application, mixing and delivery		10.00	
	2 pesticide applications		20.00	
	other		–	
Added expense for IP			–	
Trucking ($8.00/tonne)			10.35	
Land rent			–	
Operator labour (self or hired)			13.35	
Interest on operating			5.05	
		Total Operating Expenses — Grain	**258.35**	
Expenses for Straw				
Fertility	Crop removal	5 kg/ha P_2O_5 (1.7 kg/tonne removal rate)	2.15	
		34 kg/ha K_2O (12.0 kg/tonne removal rate) 12.70	12.70	
Tractor and machine expenses	fuel (3 L) and lubricants		4.05	
	repairs and maintenance		3.25	
Twine			2.95	
Other			12.45	
		Total Operating Expenses — Straw	**37.55**	
		Total Operating Expenses	**295.90**	
REVENUE				
Expected wheat yield _____				
Expected wheat price _____				
		Total Market Revenue (Yield x Price)		
Additional income from IP				
Program payment				
		Total Wheat Revenue		
Expected straw yield _____				
Expected straw price _____				
		Total Straw Revenue (Yield x Price)		
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		

OVERHEAD EXPENSES		Wheat Only	Wheat & Straw	
Machinery	depreciation	30.05	33.30	
	interest on investment	15.45	16.95	
Land		–	–	
Other overhead		11.75	12.80	
	TOTAL EXPENSES	**315.60**	**358.95**	
	Break-even price on your farm (total expenses/expected yield):			

WHITE/BLACK BEANS

OPERATING EXPENSES (costs based on projected yield of 19 cwt/acre)			Sample Costs/ Acre	Your Farm Budget
Seed	125,000–150,000 seeds/acre (60–70 lb/acre, 15–20-in. rows) certified, treated seed (with fungicide plus Cruiser insecticide)		80.60	
Fertility	40 kg/ha N		20.20	
	Crop removal	30 kg/ha P_2O_5 (14.0 kg/tonne removal rate)	13.50	
		30 kg/ha K_2O (14.0 kg/tonne removal rate)	11.25	
Herbicide	annual grass and broadleaf weeds		35.85	
Crop pre-harvest			18.40	
Fungicide, if required	white mould		50.25	
	anthracnose		17.25	
Insecticide			–	
Tractor and machine expenses	fuel (22 L) and lubricants		26.40	
	repairs and maintenance		19.15	
Marketing board fees ($6.80/tonne (white beans only))			5.85	
Crop insurance			21.35	
Custom work	fertilizer application, mixing and delivery		10.00	
	4 pesticide applications		40.05	
Trucking ($8.00/tonne)			6.90	
Drying			–	
Land rent			–	
Operator labour (self or hired)			17.95	
Interest on operating			7.90	
		Total Operating Expenses	**402.85**	
REVENUE				
Expected yield _____				
Expected price _____				
		Total Market Revenue (Yield x Price)		
Less pick charges (typically 2%–4%)				
Program payment				
		Total Revenue		
		GROSS MARGIN (Revenue — Operating Expenses)		
OVERHEAD EXPENSES				
Machinery	depreciation		35.40	
	interest on investment		15.95	
Land			–	
Other overhead			12.65	
		TOTAL EXPENSES	**466.85**	
		Break-even price on your farm (total expenses/expected yield):		

ORGANIC — GRAIN CORN AND SOYBEANS*

OPERATING EXPENSES (costs based on projected yield of 2.67 tonnes/acre (105 bu/acre) grain corn; 0.82 tonne/acre (30 bu/acre) soybeans)		Grain Corn Sample Costs/ Acre	Soybeans Sample Costs/ Acre	Your Farm Budget
Seed	grain corn: 30,000 kernels, certified, organic; soybeans: 180,000 seeds/acre, certified, organic in 21–30-in. rows	79.50	64.00	
Seed inoculant		–	2.00	
Fertility	manure, compost**	100.00	–	
Herbicide		–	–	
Insecticide		–	–	
Fungicide		–	–	
Soil maintenance (cover crop, fallow etc.)**		50.00	50.00	
Tractor and machine expenses	fuel (28 L corn, 26 L soybeans) and lubricants	33.95	30.70	
	repairs and maintenance	20.15	24.70	
Marketing board and Grain Financial Protection fees ($0.44/tonne (corn), $1.41/tonne (soybeans))		1.15	1.15	
Certification fees		3.00	3.00	
Crop insurance		16.50	20.50	
Custom work		–	–	
Added expense for handling organic crops		–	–	
Trucking ($8.05/tonne corn, $8.00/tonne soybeans)		21.45	6.55	
Drying ($19.73/tonne corn, $11.17/tonne soybeans)		52.65	9.10	
Storage ($2.06/tonne/month x 4 months)		22.00	6.75	
Land rent		–	–	
Operator labour (self or hired)		22.25	21.05	
Labour — hand weed		42.95	64.40	
Interest on operating		9.30	6.10	
	Total Operating Expenses	**474.85**	**310.00**	
REVENUE				
Expected yield _____				
Expected price _____				
	Total Market Revenue (Yield x Price)			
Program payment				
	Total Revenue			
	GROSS MARGIN (Revenue — Operating Expenses)			
OVERHEAD EXPENSES				
Machinery	depreciation	37.45	48.10	
	interest on investment	18.60	25.35	
Land		–	–	
Other overhead		12.40	18.85	
	TOTAL EXPENSES	**543.30**	**402.30**	
	Break-even price on your farm (total expenses/expected yield):			

* Organic budget estimates do not include transition period costs.

** Manure, compost and cover crop estimates are highly variable depending on individual farm situations.

ORGANIC — WINTER WHEAT AND SPELT*

OPERATING EXPENSES (costs based on projected yield of 1.36 tonnes/acre (50 bu/acre) wheat; 1.0 tonne/acre spelt)		Winter Wheat Sample Costs/Acre	Spelt Sample Costs/Acre	Your Farm Budget
Seed	wheat: 150 lb/acre certified, organic (1.4–1.7 M seeds/acre); spelt: 180 lb/acre certified, organic	78.15	112.90	
Fertility	manure, compost**	100.00	100.00	
Herbicide		–	–	
Fungicide		–	–	
Soil maintenance (cover crop, fallow, etc.)**		50.00	50.00	
Tractor and machine expenses	fuel (17 L) and lubricants	19.95	19.95	
	repairs and maintenance	15.55	15.55	
Crop insurance		14.85	10.25	
Marketing board and Grain Financial Protection fee ($0.85/tonne (wheat))		1.15	–	
Certification fees		3.00	3.00	
Custom work		–	–	
Added expense for handling organic crops		–	–	
Trucking ($8.00/tonne)		10.90	8.00	
Land rent		–	–	
Operator labour (self or hired)		13.35	13.35	
Labour — hand weed		32.20	32.20	
Interest on operating		11.25	12.10	
	Total Operating Expenses — Grain	**350.35**	**377.30**	
Expenses for Straw				
Tractor and machine expenses	fuel (3 L) and lubricants	4.05	4.05	
	repairs and maintenance	3.25	3.25	
Twine		2.95	2.95	
Other		12.45	12.45	
	Total Operating Expenses — Straw	**22.70**	**22.70**	
	Total Operating Expenses	**373.05**	**400.00**	
REVENUE				
Expected yield _____				
Expected price _____				
	Total Market Revenue (Yield x Price)			
Program payment				
	Total Revenue			
Expected straw yield _____				
Expected straw price _____				
	Total Straw Revenue (Yield x Price)			
	Total Revenue			
	GROSS MARGIN (Revenue — Operating Expenses)			

OVERHEAD EXPENSES		Wheat Only	Wheat & Straw	Spelt Only	Spelt & Straw	
Machinery	depreciation	30.05	33.30	30.05	33.30	
	interest on investment	15.45	16.95	15.45	16.95	
Land		–	–	–	–	
Other overhead		11.75	12.80	11.75	12.80	
	TOTAL EXPENSES	**407.60**	**436.10**	**434.55**	**463.05**	
	Break-even price on your farm (total expenses/expected yield):					

* Organic budget estimates do not include transition period costs.

** Manure, compost and cover crop costs estimates are highly variable depending on individual farm situations.

ORGANIC — BARLEY AND OATS*

OPERATING EXPENSES (costs based on projected yield of 1.2 tonnes/acre (55 bu/acre) barley; 0.96 tonne/acre (62 bu/acre) oats)		Barley Sample Costs/Acre	Oats Sample Costs/Acre	Your Farm Budget
Expenses for Grain				
Seed	barley: 150 lb/acre certified, organic; oats: 105 lb/acre certified, organic	76.35	48.70	
Fertility	manure/compost**	–	–	
Herbicide		–	–	
Fungicide		–	–	
Soil maintenance (cover crop, fallow etc.)**		50.00	50.00	
Tractor and machine expenses	fuel (17 L) and lubricants	20.95	20.95	
	repairs and maintenance	16.65	16.65	
Crop insurance		6.80	6.80	
Marketing board fees		–	–	
Certification fees		3.00	3.00	
Custom work		–	–	
Added expense for handling organic crops		–	–	
Trucking ($8.00/tonne)		9.60	7.70	
Land rent		–	–	
Operator labour (self or hired)		15.65	15.65	
Labour — hand weed		32.20	32.20	
Interest on operating		7.70	6.70	
	Total Operating Expenses — Grain	**238.90**	**208.35**	
Expenses for Straw				
Tractor and machine expenses	fuel (3 L) and lubricants	4.05	4.05	
	repairs and maintenance	3.25	3.25	
Twine		2.95	2.95	
Other		12.45	12.45	
	Total Operating Expenses — Straw	**22.70**	**22.70**	
	Total Operating Expenses	**261.60**	**231.05**	
REVENUE				
Expected yield _____				
Expected price _____				
	Total Market Revenue (Yield x Price)			
Program payment				
	Total Revenue			
Expected straw yield _____				
Expected straw price _____				
	Total Straw Revenue (Yield x Price)			
	Total Revenue			
	GROSS MARGIN (Revenue — Operating Expenses)			

OVERHEAD EXPENSES		Barley Only	Barley & Straw	Oats Only	Oats & Straw	
Machinery	depreciation	31.65	34.90	31.65	34.90	
	interest on investment	16.75	18.25	16.75	18.25	
Land		–	–	–	–	
Other overhead		13.35	14.40	13.35	14.40	
TOTAL EXPENSES		**300.65**	**329.15**	**270.10**	**298.60**	
					Break-even price on your farm (total expenses/expected yield):	

* Organic budget estimates do not include transition period costs.

** Manure, compost and cover crop costs estimates are highly variable depending on individual farm situations.

OMAFRA RESOURCES

Selected Factsheets and Publications

Agronomy Guide for Field Crops, Publication 811
Budgeting Farm Machinery Costs
Field Crop Protection Guide, 2011-2012, Publication 812
Guide to Custom Farmwork and Short-Term Equipment Rental
Guide to Weed Control, 2012-2013, Publication 75
Soil Fertility Handbook, Publication 611
Ontario Farm Record Book, Publication 540

A full listing of publications is available on the OMAFRA website — www.ontario.ca/omafra — and can be ordered through ServiceOntario, available:

- online at www.publications.serviceontario.ca

- by telephone to the ServiceOntario Contact Centre
  Monday to Friday, 8:30 AM to 5:00 PM
  416-326-5300
  416-325-3408 (TTY)
  1-800-668-9938 Toll-free across Canada
  1-800-268-7095 TTY Toll-free across Ontario

OMAFRA has excellent tools and information to help manage your farm business in the Agricultural Business Management section at www.ontario.ca/agbusiness. Results of the Custom Farmwork and Equipment Rental Rates survey are available here. The Ontario Enterprise Budgets, also found on the OMAFRA website, has budgets for cost of production, including field crops. You can download a Budgeting Tool Excel file, modify the numbers to reflect your operation and the file will complete the calculations. The Budgeting Tool also lets you assess the potential effect of production and marketing risk factors and risk management strategies.

Publication 60, *Field Crop Budgets,* is updated by John Molenhuis, Business Analysis and Cost of Production Program Lead, OMAFRA, Brighton (john.molenhuis@ontario.ca), and Brian Hall, Edible Beans and Canola Specialist, OMAFRA, Stratford (brian.hall@ontario.ca).

METRIC CONVERSION TABLES

Application rate conversions (approximate)

Metric to Imperial

litres per hectare × 0.09 = gallons per acre
litres per hectare × 0.36 = quarts per acre
litres per hectare × 0.71 = pints per acre
millilitres per hectare × 0.015 = fluid ounces per acre
grams per hectare × 0.015 = ounces per acre
kilograms per hectare × 0.89 = pounds per acre
tonnes per hectare × 0.45 = tons per acre

Imperial to metric

gallons per acre × 11.23 = litres per hectare (L/ha)
quarts per acre × 2.8 = litres per hectare (L/ha)
pints per acre × 1.4 = litres per hectare (L/ha)
fluid ounces per acre × 70 = millilitres per hectare (mL/ha)
tons per acre × 2.24 = tonnes per hectare (t/ha)
pounds per acre × 1.12 = kilograms per hectare (kg/ha)
ounces per acre × 70 = grams per hectare (g/ha)

Liquid equivalents

litres/hectare	approximate gallons/acre
50 L/ha	= 5 gal/acre
100 L/ha	= 10 gal/acre
150 L/ha	= 15 gal/acre
200 L/ha	= 20 gal/acre
250 L/ha	= 25 gal/acre
300 L/ha	= 30 gal/acre

Dry weight equivalents

grams or kilograms/hectare	ounces or pounds/acre
100 g/ha	= 1½ oz/acre
200 g/ha	= 3 oz/acre
300 g/ha	= 4¼ oz/acre
500 g/ha	= 7 oz/acre
700 g/ha	= 10 oz/acre
1.10 kg/ha	= 1 lb/acre
1.50 kg/ha	= 1¼ lb/acre
2.00 kg/ha	= 1¾ lb/acre
2.50 kg/ha	= 2¼ lb/acre
3.25 kg/ha	= 3 lb/acre
4.00 kg/ha	= 3½ lb/acre
5.00 kg/ha	= 4½ lb/acre
6.00 kg/ha	= 5¼ lb/acre
7.50 kg/ha	= 6¾ lb/acre
9.00 kg/ha	= 8 lb/acre
11.00 kg/ha	= 10 lb/acre
13.00 kg/ha	= 11½ lb/acre
15.00 kg/ha	= 13½ lb/acre

Conversion tables — imperial to metric (approximate)

Area

1 square foot = 0.09 m^2
1 square yard = 0.84 m^2
1 acre = 0.40 ha

Volume (dry)

1 cubic yard = 0.76 m^3
1 bushel = 36.37 L

Volume (liquid)

1 fluid ounce (imp.) = 28.41 mL
1 pint (imp.) = 0.57 L
1 gallon (imp.) = 4.55 L
1 gallon (U.S.) = 3.79 L

Weight

1 ounce = 28.35 g
1 pound = 453.6 g
1 ton = 0.91 tonne

Handy metric conversion factor

litres per hectare × 0.4 = litres per acre
kilograms per hectare × 0.4 = kilograms per acre

Published by the Ministry of Agriculture
Food and Rural Affairs
© Queen's Printer for Ontario, 2014
Toronto, Canada
ISSN 0838-5657X
12-14-1M
Également disponible en français (Commande nº 0060F)

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